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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,162	02/20/2004	Wade D. Vinson	200400249-1	7167

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

DWIVEDI, VIKANSHA S

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/783,162	Applicant(s) VINSON ET AL.	
	Examiner Vikansha S. Dwivedi	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/20/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: Appendix I (Figure 1 of US patent number 5,650,678).

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “*finger guard*” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Applicant is advised to be consistent in the usage of the terminology in the claims, drawings and specification. Applicant has shown and described a *guard* not a *finger guard* as claimed in claim 25. So, the drawings fail to show every feature of the claimed invention. Proper correction is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 3, 4, 9, 13, 20, 25 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant describes in the specification that the height of the blades ("H_B") is limited by the diameter of inner cylindrical portion 74 of the fan housing 70 and the hub diameter ("D_H") of the fan impeller 72. Applicant also talks about how the blade height that is 25% of the impeller diameter displaces greater amount of air.

Applicant fails to properly describe the blade height ("H_B") and the full blade height, since the hub is round in shape and the blades are concave in shape at the point of contact to the hub the height of the blades ("H_B") will be different at various points along the hub diameter.

Similarly, with respect to the maximum chord length, applicant has managed to provide the definitions of chord but has failed to describe the maximum chord length

and the blade height that corresponds to the maximum chord length. The mark-ups shown in the drawings will differ from point to point and do not precisely define different heights claimed by the applicant.

Applicant claims that the finger guard being displaced outward relative to the fan housing and also that the fan housing comprises a top that extends over each finger guard. These two conditions as described in the claim contradict each other, the first one suggests that the finger guard is outside with respect to the fan housing and the second one suggests that the finger guard as the top of the fan housing that extends over the finger guard is still a part of the fan housing.

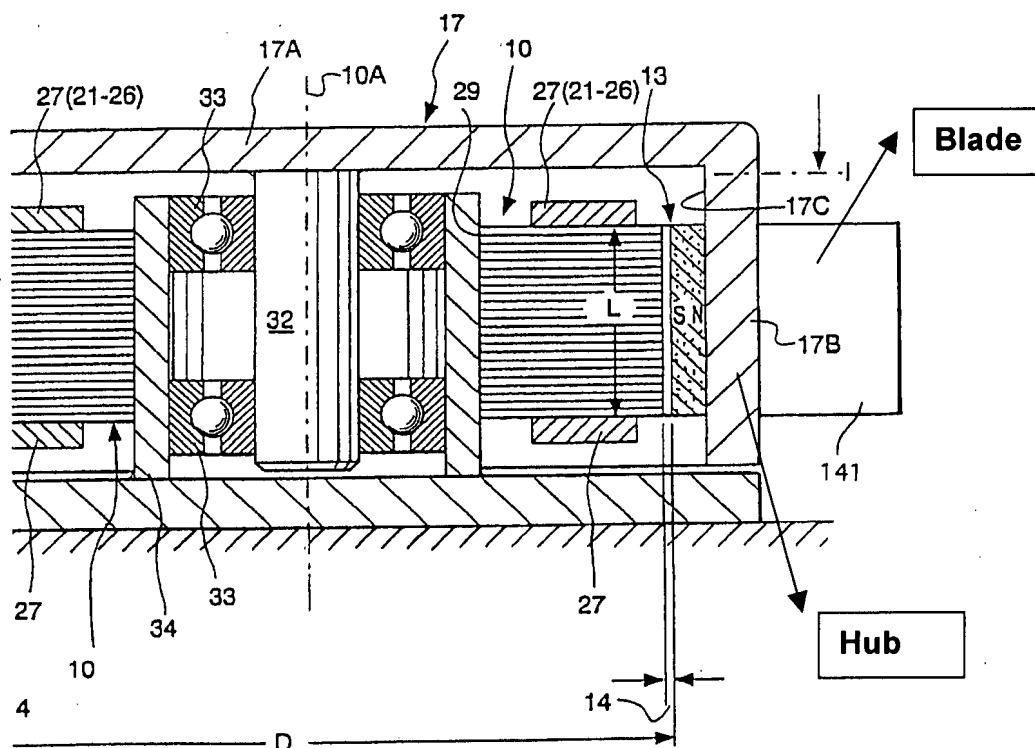
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa.

Von der Heide teaches a cooling fan comprising: a three-phase DC motor, an impeller comprising a hub to house said motor and a plurality of blades 141 extending from the hub. It should be clear rotor housing 17 is the hub and has plurality of blades 139 and 141 extending from the hub 17. for applicant's convenience the hub and the Blade are shown below. It is a marked up copy of Von der Heide figure 2.



It should be clear that a impeller is the rotating part that transmits motion in a device such as a cooling fan. In case of Von der Heide a magnetic external rotor comprises an inverted cup-shaped rotor housing/hub 17 with a horizontal top surface 17A and a cylindrical circumferential wall 17B that supports the blades 139 and 141. Stub shaft 32 is attached to the center of rotor housing 17 at the center of top 17A. Stub shaft 32 rides in ball bearing journals 33 and is supported thereby in a manner that rotor housing 17 is pivotally secured to stator 10 and can rotate about center axis 10A.

Von der is silent about the blades being at least 25 % of the impeller diameter.

Yokozawa et al. discloses blades and impeller where the blades are at least 25 % of the impeller diameter as seen in figure 1. (Please see appendix I for more explanation). At the It would have been obvious to one of ordinary skill in the art at the time of invention

to modify Von der Heide in view of Yokozawa to increase the durability of the arrangement (col. 1 ll. 55-60).

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Dehmer.

Von der Heide in view of Yokozawa teaches the invention substantially except the chord length. Dehmer teaches blade has a chord profile (Figure 3) that increases in chord length from a region proximate to the hub (bottom of figure 3) to a maximum chord length at a maximum chord length blade height (Figure 3); wherein the maximum chord length blade height is approximately half the full blade height (Figure 3, chord length increases towards the middle of the fan and is maximum around the middle); wherein each blade of the impeller has a tip and the chord profile decreases in chord length from the maximum chord length blade height to the tip of the blade (Figure 3 shows , chord length increases towards the middle of the fan and is maximum around the middle and then it decreases towards the upper end that is the tip of the blade). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Dehmer to increase the efficiency by minimize the losses generated by the fluid movement. (Col. 1 ll. 1-5).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Harvey (GB 0324203.9)

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Von der Heide in view of Yokozawa teaches the invention substantially except the stagger angle. Harvey discloses blade that has a tip and the stagger angle of each blade increases from the hub to the tip of the blade (summary of invention paragraph 17). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Harvey to increase the velocities on the surface and thus reducing the local pressure (summary of invention paragraph 19). With respect to claim 6 Von der Heide in view of Yokozawa and further in view of Harvey teaches the invention except claimed range, however it fails to patentably distinguish over Von der Heide in view of Yokozawa and further in view of Harvey and would have been within the level of one of ordinary skill in the art at the time the invention was made. It has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955), MPEP 2144.05 II.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Harmsen.

Von der Heide in view of Yokozawa teaches the invention substantially except the camber angle. Harmsen discloses camber angle that decreases from the hub to the tip (Col. 1 ll. 33-44). It would have been obvious to one of ordinary skill in the art at the time

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of invention to modify Von der Heide in view of Yokozawa and further in view of Harmsen as a commonly known feature in the field of invention. (Col. 1 ll. 33-44).

With respect to claim 8 Von der Heide in view of Yokozawa and further in view of Harmsen teaches the invention except claimed range, however it fails to patentably distinguish over Von der Heide in view of Yokozawa and further in view of Harmsen and would have been within the level of one of ordinary skill in the art at the time the invention was made. It has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955), MPEP 2144.05 II.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Neely et al.

Von der Heide in view of Yokozawa teaches the invention substantially except seven blades. Neely discloses seven blades. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Neely to provide seven blades to increase the performance of the system. (Summary of invention).

Claim 11, 13, 14, 15, 16, 17, 19, 20, 21, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen.

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Von der Heide in view of Yokozawa teaches the invention substantially except the chord length. Dehmer teaches blade has a chord profile (Figure 3) that increases in chord length from a region proximate to the hub (bottom of figure 3) to a maximum chord length at a maximum chord length blade height (Figure 3); wherein the maximum chord length blade height is approximately half the full blade height (Figure 3, chord length increases towards the middle of the fan and is maximum around the middle); wherein each blade of the impeller has a tip and the chord profile decreases in chord length from the maximum chord length blade height to the tip of the blade (Figure 3 shows , chord length increases towards the middle of the fan and is maximum around the middle and then it decreases towards the upper end that is the tip of the blade). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Dehmer to increase the efficiency by minimize the losses generated by the fluid movement. (Col. 1 ll. 1-5). Von der Heide in view of Yokozawa teaches the invention substantially except the stagger angle. Harvey discloses blade that has a tip and the stagger angle of each blade increases from the hub to the tip of the blade (summary of invention paragraph 17). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Harvey to increase the velocities on the surface and thus reducing the local pressure (summary of invention paragraph 19). Von der Heide in view of Yokozawa teaches the invention substantially except the camber angle. Harmsen discloses camber angle that decreases from the hub to the tip (Col. 1 ll. 33-44). It would have been obvious to one of ordinary skill in the art at the time of

invention to modify Von der Heide in view of Yokozawa and further in view of Harmsen as a commonly known feature in the field of invention. (Col. 1 ll. 33-44).

With respect to claim 13 Dehmer teaches blade has a chord profile (Figure 3) that increases in chord length from a region proximate to the hub (bottom of figure 3) to a maximum chord length at a maximum chord length blade height (Figure 3); wherein the maximum chord length blade height is approximately half the full blade height (Figure 3, chord length increases towards the middle of the fan and is maximum around the middle) or in other words located at **approximately** forty percent of the blade height.

With respect to claims 14 and 15 Heide in view of Yokozawa and further in view of Harvey and Harmsen discloses the general conditions of the claimed invention except for the express disclosure of a stagger angle of approximately 29 degrees at the hub and a stagger angle of approximately 56 degrees at the tip and camber angle of approximately 29 degrees at the hub and approximately 12 degrees at the tip. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a stagger angle of approximately 29 degrees at the hub and a stagger angle of approximately 56 degrees at the tip and camber angle of approximately 29 degrees at the hub and approximately 12 degrees at the tip, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With regard to claims 16 and 17 Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen discloses the claimed invention except for rare earth

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magnet where the magnet comprises of bonded neodymium-iron-boron. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the rotor magnet of bonded neodymium-iron-boron. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. See MPEP 2144.04.

With regard to claims 20-23 the determination of patentability in a product-by-process claim is based on the product itself, even though the claim may be limited and defined by the process. That is, the product in such a claim is unpatentable if it is the same as or obvious from the product of the prior art, even if the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen discloses the product as claimed. A product-by-process limitation adds no patentable distinction to the claim, and is unpatentable if the claimed product is the same as a product of the prior art.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Herbert.

Von der Heide in view of Yokozawa teaches the claimed invention as explained above except a finger guard. It would have been obvious to one of ordinary skill in the art to provide a fan finger guard, as fan finger guard are well known accessories and are

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available for most AC DC fans to protect the user as disclosed by Herbert (Col. 1 ll. 66-68 to Col. 2 ll. 1-9).

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Herbert and further in view of Dehmer, Harvey and Harmsen.

Von der Heide in view of Yokozawa and further in view of Herbert teaches the claimed invention as explained above except chord length stagger and camber angle.

Von der Heide in view of Yokozawa and further in view of Herbert teaches the invention substantially except the chord length. Dehmer teaches blade has a chord profile (Figure 3) that increases in chord length from a region proximate to the hub (bottom of figure 3) to a maximum chord length at a maximum chord length blade height (Figure 3); wherein the maximum chord length blade height is approximately half the full blade height (Figure 3, chord length increases towards the middle of the fan and is maximum around the middle); wherein each blade of the impeller has a tip and the chord profile decreases in chord length from the maximum chord length blade height to the tip of the blade (Figure 3 shows , chord length increases towards the middle of the fan and is maximum around the middle and then it decreases towards the upper end that is the tip of the blade). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Dehmer to increase the efficiency by minimize the losses generated by the fluid movement. (Col. 1 ll. 1-5). Von der Heide in view of Yokozawa and further in view of Herbert teaches the invention substantially except the stagger angle. Harvey discloses blade that has a tip

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and the stagger angle of each blade increases from the hub to the tip of the blade (summary of invention paragraph 17). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Harvey to increase the velocities on the surface and thus reducing the local pressure (summary of invention paragraph 19). Von der Heide in view of Yokozawa and further in view of Herbert teaches the invention substantially except the camber angle. Harmsen discloses camber angle that decreases from the hub to the tip (Col. 1 ll. 33-44). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Harmsen as a commonly known feature in the field of invention. (Col. 1 ll. 33-44).

Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen and in further view of Seki.

Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen except the solidity of approximately one. Seki discloses solidity of approximately one (Paragraph 55).). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen and in further view of Seki to get to a solidity of approximately one because larger solidity decreases speed (paragraph 55).

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Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Herbert and in further view of Seki.

Von der Heide in view of Yokozawa and further in view of Herbert except the solidity of approximately one. Seki discloses solidity of approximately one (Paragraph 55).). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Herbert and in further view of Seki to get to a solidity of approximately one because larger solidity decreases speed (paragraph 55).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen and further in view of Horng.

Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen except the second cooling fan in series. Horng discloses fans in series (Figure1). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Von der Heide in view of Yokozawa and further in view of Dehmer, Harvey and Harmsen and further in view of Horng for heat dissipation (Claim).

Response to Arguments


Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikansha S. Dwivedi whose telephone number is 571-272-7834. The examiner can normally be reached on M-F, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


VSD


ANTHONY D. STASHICK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

APPENDIX

I

U.S. Patent

Jul. 22, 1997

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